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ABSTRACT

This practitioner's monograph concerns instructional practices for developing self-directed learning among middle-school students. The monograph provides a definition of self-directed learning, a review of the developmental needs of middle-grade students, a description of a classroom environment designed to facilitate self-directed learning, and an overview of instructional strategies for middle-graders. Self-directed learners are defined as students who have mastered the basic study skills and who have a sense of conscious control over learning tasks. Students' developmental needs are described in sections focusing on physical, intellectual, cognitive, emotional, social, moral, and ethical development. The classroom environment is described in terms of qualities that foster self-directed learning and of obstacles to a self-directed learning environment. Instructional strategies suggested concern whole class lectures, questioning and discussion, individualized instruction, peer-based learning, projects, and teacher-student planning. (RH)

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Practitioner's Monograph #3:

INSTRUCTIONAL PRACTICES FOR MIDDLE GRADE STUDENTS: DEVELOPING SELF-DIRECTED LEARNERS

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INSTRUCTIONAL PRACTICES FOR MIDDLE GRADE STUDENTS: DEVELOPING SELF-DIRECTED LEARNERS

by

Sara Lake

November, 1988

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The California League of Middle Schools is an association of people who are interested in furthering the growth and development of middle schools and middle school concepts. The League is composed of parents, teachers, school and district administrators, State Department of Education officials, and others who have an interest in the education of early adolescents.

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Middle level education focuses on the needs of young adolescents. These students are in transition, both in their personal lives and in their educational careers: they are leaving childhood and they are leaving the protected, teacher-centered environment of the elementary school. They are beginning to face adult challenges, including the challenge of taking responsibility for their own learning, which they will need to do in high school and in all later education. Middle level schools have an obligation to help young adolescents mature physically, intellectually, emotionally, and socially, and to give them the skills for sustained self-directed learning.

Self-Directed Learning: A Definition

A self-directed learner has mastered the techniques of learning (e.g., skimming and scanning, notetaking, summarizing, test-taking) but, far more importantly, he or she knows how to apply these techniques and how to actively initiate and monitor his or her own learning.

Kolcaba suggests these as the competencies of an independent learner:

- Knowing how to set learning goals.
- Knowing which skills to apply in achieving goals.
- Focusing attention on the subjects to be learned.
- Understanding where, when, and why to apply each learning skill.
- Setting evaluation standards for learning.
- Applying evaluation measures.[1]

The phrase, "Learning to Learn" encompasses instruction in these learning strategies as well as in the traditional "study skills." The latter supply the techniques for learning, e.g., reading comprehension strategies, formats for outlining, methods for goal-setting and time management. The "Learning to Learn" concept adds instruction in the skills and attitudes of active control

and choice in learning--in directing one's own thinking and taking "ownership" of one's learning. A student who has mastered the basic study skills may be able to complete teachers' assignments. But, until that student feels a sense of conscious control over learning tasks, he or she is more of a "teacher-directed" than a self-directed learner.

Successful learners can be distinguished from unsuccessful learners both in their mastery of study skills and in their active monitoring and sense of purpose in learning. It has been found that poor math students frequently suffer from poor strategy execution and inattention to their task. Poor readers do not monitor their comprehension of a reading passage.[2] They are not even aware that reading takes effort, that meaning must be extracted from a text, or that there exist learning strategies to help them do that. Less successful learners are passive, whereas successful learners are active.[3] Successful learners use the tools of learning with real awareness. Atwood's 1985 study of high school students found that advanced placement students took complete notes and had a reason for the notes they took. Average students took notes because the teacher required it, and they used the notes only to review for the test. Below average students also took notes because they had to. Their notes were poorly organized, they did not use them to study, and they saw no real reason for taking them.[4]

These findings suggest that less successful students are not grasping the purpose or personal relevance of school learning tasks. If they view these tasks as meaningless activities done solely to please a teacher, how must this affect their level of motivation and engagement in learning?

Disadvantaged or unsuccessful students are often given the kind of rote, teacher-dominated, fill-in-the-blank seatwork that fosters passive learning, not active self-direction. Della-Dora and Blanchard suggest that there is "a prevalent tacit assumption that high academic ability and ability to be self-

responsible are almost synonymous. There are no empirical data to support this belief. It is a self-fulfilling prophecy to anticipate that students with lower I.Q. scores and/or lower achievement test scores are less able to be self-responsible and self-directed in learning."[5] Barbara Presseisen argues:

> Teachers of cognitive instruction need to focus on ways to develop student autonomy over time, to help at-risk youngsters learn to take control of their own learning, wherever that occurs. For students living in America's urban ghettos, it seems that transferring the realization of the importance of one's own responsibility in learning is one of the most essential aspects of learning at all. It is the mark of maturity in an individual and the challenge to be a full-fledged member of a democratic society.[6]

In our rapidly changing society, success in high school, then in the adult world, will depend to a great extent on self-directed learning. Facts learned may become obsolete, but knowing "how to learn" will not. Self-directed learning can also foster a feeling of personal efficacy--a feeling young adolescents frequently need.[7]

If we are to equip middle level students with the skills for future learning, we will need to first determine a starting point for instruction, based on their developmental needs.

Developmental Needs of Middle Grade Students

One has only to look at a group of young adolescents to realize that they hardly offer a common starting point for instruction; indeed, the key factor at this age is variability. Not only do agemates differ from each other in physical, intellectual, emotional, and/or social development, individuals differ within themselves from day to day--sometimes, it seems, from minute to minute.

Caught in the Middle, the report of the California Superintendent's Middle Grade Task Force, summarizes the physical, intellectual, emotional,

social, and moral/ethical developmental stages of young adolescents.[8] It characterizes middle graders as being "at risk" in each of these five areas, as being at a crossroads where different paths to the future may be chosen. "Risk" is entailed because some choices made at this age can have lifelong negative consequences.

Early adolescents are making several major life transitions:

- Physically, they are going through puberty, becoming restless and awkward in their rapidly changing bodies.
- Intellectually, they are concrete-operational thinkers in Piaget's scheme of cognitive development, moving toward formal operations.
- Emotionally, they are being tugged and turned by all the changes and new choices they are experiencing.
- Socially, they are switching their allegiance from parents to peers and beginning to experiment with adult roles and behaviors.
- Morally and ethically, they tend to be idealistic, but naive. They are often eager to examine values and are beginning to develop the introspection and analytical skills they need to do so.

Later in this monograph, specific instructional methods will be considered in relation to these developmental needs. First, let us examine some general qualities of instruction that address the needs of young adolescents:

Physical Development Experts recommend active learning strategies for this age group, in part because their rapid physical development tends to make them restless. This energy can be channeled for academic learning, instead of against it, through manipulative activities and/or movement around the room. Since young adolescents' attention spans seldom exceed 18 minutes,[9] it may also be worthwhile to use more than one learning mode within a single class

period.

Intellectual/Cognitive Development Piaget's research suggested that, at about age 12, individuals shift to a new stage of thinking. From being "concrete operational" (able to think logically about the immediate environment) they move to the "formal operations" stage, in which they can think abstractly, develop hypotheses, and "think about their own thinking," that is, practice metacognition.

Newer studies indicate that Piaget may have been optimistic in setting this transition at age 12; age 15 now seems to be nearer the average.[10] (Indeed, research indicates that a good number of adults never achieve the "formal operations" stage of abstract thought at all, or at least not in all areas of their thinking.)[11] Middle grade students, then, are most likely to to be in the concrete operational stage, or in an early stage of transition to formal operational thought. Yet most secondary school instruction is geared to the formal operations stage, relying as it does on lectures, abstract ideas, and distant facts.

"Brain growth periodization" studies identified a brain growth spurt around ages 10 to 12, followed by a growth plateau during ages 12 to 14. This seems to provide a biological basis for Piaget's stages.[12] It can, however, be over-simplified into a rationalization: we can't teach twelve- to fourteen-year-olds anything new because their brains are temporarily "on hold." But cognitive development is not simply a biological process, like puberty, that comes in its own time. Research demonstrates that the development of formal operational thought can be fostered by the proper teaching environment.

Problem solving studies indicate that early adolescents may not naturally use formal thinking strategies, but they can do so when prompted. By providing "prompts," such as higher order questions, direct instruction and practice in thinking skills, and encouragement to reflect through discussion and "thinking

aloud," teachers can help students operate at a higher cognitive level.[13]

Certain instructional practices seem to enhance students' cognitive development. Saunders and Shepardson compared 6th grade science classes conducted in "concrete" and "formal" instructional modes: the former emphasized "hands-on" inquiry with concrete materials, guided discovery, and practice; the latter emphasized lecture, discussion, reading, writing, and media viewing. Almost all of the students tested as "concrete operational" thinkers at the beginning of the year. At the end of the year, when their formal reasoning skills were tested, almost twice as many of the "concrete instruction" group had advanced toward formal operational thinking. The "concrete instruction" students had also out-performed the "formal instruction" group in science learning.[14]

David Strahan outlines a "guided thinking" approach to instruction, for building from the concrete to the formal. Its key features are:

- Instruction in reasoning that is integrated into content teaching;
- Opportunities for students to relate new information to prior knowledge, which helps them develop new patterns for processing information;
- A teacher-provided framework that helps students to structure new information and generate abstractions (for example, an advance organizer);
- A systematic progression from concrete experiences toward abstractions;
- Introductory activities that allow students to openly explore new ideas;
- Student discussion of their observations, because "thinking aloud" and the exchange of ideas facilitate problem solving;

- o Teacher-guided discussion with varying levels of questions and prompts to help students generate abstractions; and
- o Teacher encouragement to students to reflect upon their own thinking processes.[15]

Reflection, or metacognition, is a powerful tool for self-knowledge and self-directed learning. Students must be able to "think about their thinking" if they are to monitor their attention to a task and evaluate how well they are learning.

Some educators may be concerned that time spent on thinking skills instruction in the content classroom will deprive students of factual learning. A study of 100 middle class 7th grade science students and 85 low income 9th grade math students indicates that giving time to higher order thinking skills instruction improves both students' rote learning and their higher mental processes.[16]

Emotional Development Young adolescents are still dependent on adults, yet starting to break away--to feel the need to do things on their own. Though some students may protest it at the time, most seem to desire responsibility. If they are to succeed at it, they must first be taught the skills of responsible learning, e.g., how to plan a task, where to go for information, how to budget time and effort, how to make choices, how to be self-evaluative and accountable. Once the needed skills are developed, graduated classroom responsibilities, participation in class decision making, and choice in learning activities (for example, through learning contracts or independent projects) seem to work well.

Taking responsibility for a task increases the student's "ownership" of it and subsequent pride in accomplishment. Knowing that they are trusted and can complete tasks on their own enhances the ego of young adolescents and addresses their need for autonomy.[17]

Social Development Early adolescents' desire to be with their friends can be used to advantage in the middle grade classroom. In pairs or learning teams, students may venture questions or answers they would not risk in front of the whole class. Each individual has more chances to talk and receives more direct feedback and personal recognition. Peer loyalty is such that students may work hard on a cooperative task, because failing to do so means disappointing their friends.

Moral and Ethical Development The instructional modes already discussed have potential benefits for students' ethical development. For example, Kohlberg's stages of moral development correlate higher moral thought to the ability to reason abstractly. Therefore, developing formal thought processes may enhance moral development. Guided instruction strategies may help move students from their "concrete" personal experiences to an appreciation of "abstract" social values.[18]

Active learning and in-class peer interaction provide healthy outlets for middle graders' physical and social development needs. The sympathetic acceptance of these needs by school adults may alleviate some of the pressure that adolescents feel--pressure that can lead them into mistaken choices. Accommodating students' desire for competent independence, through the careful development of learning responsibility, can increase their self confidence and self reliance.

A Classroom Environment for Self-Directed Learning

Thomas, Strage, and Curley of Far West Laboratory delineate the following qualities for a classroom that fosters self-directed learning:

> Aspects of course features that appear to be most salient in influencing student self-directed learning include the presence of an individualistic, mastery-oriented goal structure . . . explicit foreknowledge of the criterion task . . .specific performance goals

> for assignments . . . learner-administered intrinsic rewards for task completion . . . and routine testing practices that emphasize integration of ideas versus verbatim production of information.
>
> Several components that appear to be useful . . . are: (1) appropriate academic demands, (2) adequate instructional supports, (3) opportunities to learn and practice effective self-directed learning activities, and (4) appropriate classroom goal structure.[19]

"Appropriate academic demands" means that students are prompted forward in their skills and thinking processes, but not pushed so rapidly that they become frustrated or fail. "Adequate instructional supports" means that students are given initial training and practice in a learning skill, as well as study aids and classroom tasks that consistently elicit that skill. "Appropriate classroom goal structure" means that students can see a reason--a "payoff"--for using the skill.

Skills, physical or mental, must be practiced. First attempts at a new skill are often clumsy, and anxiety or embarrassment may bring a halt to learning. Leslie Hart, in delineating his Proster Theory of brain-compatible learning, calls for a classroom free of anything punitive, critical, or threatening to students, because "the neocortex, where learning must occur, works poorly under threat."[20] Middle graders, in the awkwardness and uncertainty of their growth stage, can be exquisitely sensitive to criticism and potential embarrassment. They, in particular, need a secure and accepting environment in which to try out new skills with a teacher who is non-judgmental and who models a willingness to take risks in order to learn.

Obstacles to a Self-Directed Learning Environment Unfortunately, an appropriate classroom environment can be sabotaged by inappropriate supports and/or goal structures. Many teachers prepare worksheets or advance organizers to help students with assignments. Properly done, these aids can promote higher order thinking. But a worksheet that emphasizes lower order rote learning may actually discourage students from reading for understanding.

Exclusive use of a fill-in-the-blank format, for example, might signal to students that the teacher wants them to scan the text for proper names or isolated statistics. Tests that consist only of factual recall questions can give students a similar message: that their grade depends on memorizing information, but not necessarily on thinking about it.[21]

Self-directed learning requires the learner to be an active force: actively engaged, questioning, monitoring, reflecting, making decisions. A self-directed classroom is one in which control, in some senses, has passed from teacher to students. Some may find this less "efficient" than a teacher-controlled classroom. Students are likely to wanders off the point as they explore ideas; for some teachers, the temptation to jump in and "get things back on track" may be great.[22]

The school administration might also sabotage self-directed, higher order learning through the way it conceptualizes educational progress. Thoughtful reflection takes time. If the prime directive from the central office is "get through the textbook," extra time for reflection may not be available. Exploratory, hands-on learning is time-consuming, messy, noisy, and expensive, if it is contrasted with a traditional classroom full of silent students, facing front, all reading the same textbook. It seems less likely to thrive in communities where concern centers on budgets and/or traditional decorum.

Instructional Strategies for Middle Grade Students

The first characteristic of early adolescents discussed in this monograph was their incredible variability. Experts seem to agree that there can be no single "right" way to teach these students. William Alexander and Paul S. George assert that, "The middle school has never been committed to any one particular instructional strategy to the exclusion of any other. . . .The right question to ask about instruction in the middle school is likely to be,

'What is the right method to use for these objectives in this area with this particular group of students?'"[23]

Whole Class Lecture This tends to be the most abstract, most passive form of instruction and, therefore, the least recommended for middle grade students. But lectures are very efficient for certain tasks, such as providing background information. And, since high school and college instruction is almost always conducted in the lecture mode, middle level schools have an obligation to prepare students to succeed at this form of learning.

Students can be encouraged to be "active" learners even in this "passive" mode of instruction. Their sense of responsibility for their own learning can be engaged, if they understand that listening, assessing one's understanding of content, formulating questions, and extracting main ideas for notes are all very active tasks they perform during a lecture.

Questioning and Discussion Improving teachers' higher order questioning has been found to advance students' higher mental processes in middle grade science and math classes.[24]

Skillful teacher questioning and discussions can help students develop metacognitive skills. Thomason recommends that teachers always ask students to justify their answers--both right and wrong answers--because this helps them clarify their own reasoning.[25] Having to explain themselves may be a new experience for some students. When this is the case, it should probably be introduced gently, perhaps by having students first try it with a partner or small group, rather than being put "on the spot" in front of the whole class.

Small discussion or brainstorming groups seem to have a number of advantages. Like other peer-based strategies, they allow students to interact with their friends; they encourage problem solving and the generation of new ideas; they provide a more secure setting for shy students; and they keep

bolder students from dominating classroom talk. Robert Shockley speaks highly of interactive learning: "Students who spent instructional time discussing, answering questions, listening, and engaging in interactive activities, have higher achievement than students that were engaged in non-interactive instructional strategies, such as seatwork or independent study."[26]

Individualized Instruction Individualized strategies can help develop students' personal responsibility, creativity, independence, and self-discipline; and they can offer more student motivation and greater personalization of learning.[27] Approaches such as learning centers and learning contracts give students a choice of learning options. Also, they frequently permit movement around the classroom and utilize manipulative materials that aid concrete learning.

Peer-Based Learning Peer learning strategies, particularly peer tutoring and heterogeneous cooperative learning teams, are strongly recommended by the state task force report, Caught in the Middle.[28] Alexander and George suggest that peer strategies give students more control over their own learning, changing the teacher's role to one of "organizer and facilitator." Peer strategies make more efficient use of human resources in the classroom and increase the level of warmth and confidence.[29]

As with any instructional strategy, students must first be taught their role in the process, in this case, cooperation and group management skills. There is, of course, a danger that peer interaction will get out of hand and that socializing will swamp academics. Thomason suggests that this can be avoided if teachers set up clear, business-like tasks and timelines, and make students individually accountable for group learning.[30]

Peer tutoring has been shown repeatedly to help both the tutor and tutee, academically and socially. It helps the tutor by conferring responsiblity and by requiring him or her to reflect upon the learning process.[31]

Projects Callahan and Clark insist that: "To be worthy of the name, a project must be truly a problem-solving activity. In a true project, the student plans, executes, and evaluates the entire undertaking. The teacher's role is simply to help, advise, and guide the learning."[32] Student projects are also highly recommended by Caught in the Middle.[33]

Conducted individually or in small groups, projects offer the benefits of individualized instruction or peer strategies. Projects put students in control of their own learning and emphasize skills of planning and time management. They frequently also employ hands-on learning and inquiry, offering students opportunities to move about, to think, to explore, to practice their learning skills in "real" tasks, and to transfer these skills to new applications.

Teacher/Student Planning Students can be given a voice in learning at many different levels; choices can range from picking one's own term paper topic to full participation in curriculum planning. Naturally, choice must be geared to students' maturity levels, and teachers should consider the fact that some of today's students are simply not used to having choices or taking personal responsibility--passive learning still predominates in many classrooms. But any level of student choice has the potential for increasing students' ownership of their learning--a hallmark of self-directed learning.

These are some of the instructional variations that have been recommended to meet the defined needs of early adolescents. Issues of the Middle School Journal and publications from the National League of Middle Schools offer more detailed teaching ideas for addressing the two paramount goals of middle level education: meeting the unique--and varied--developmental needs of middle grade students and equipping them to move from the elementary school to the more independent, self-directed learning model of the high school.

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